

Section 5-1: Bisectors of Triangles

By the end of this lesson, you should be able to answer:

- How do you identify and use perpendicular bisectors in triangles?
- How do you identify and use angle bisectors in triangles?

Define the following:

1. Perpendicular Bisector

2. Concurrent Lines

3. Point of Concurrency

4. Circumcenter

5. Incenter

Theorems:

5.1 - Perpendicular Bisector Theorem

5.2 - Converse of the Perpendicular Bisector Theorem

5.3 - Circumcenter Theorem

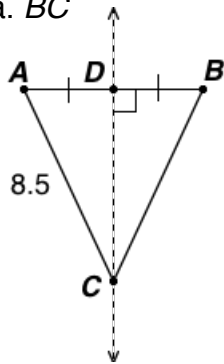
5.4 - Angle Bisector Theorem

5.5 - Converse of the Angle Bisector Theorem

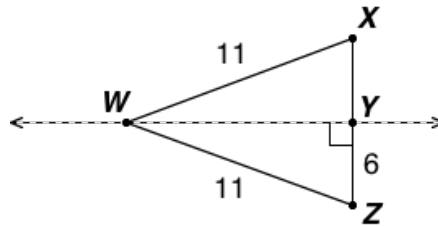
5.6 - Incenter Theorem

Example 1: Find each measure.

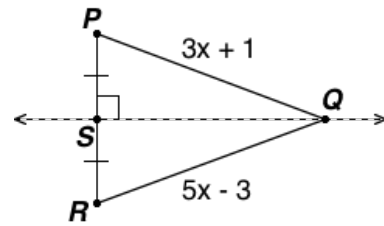
a. BC



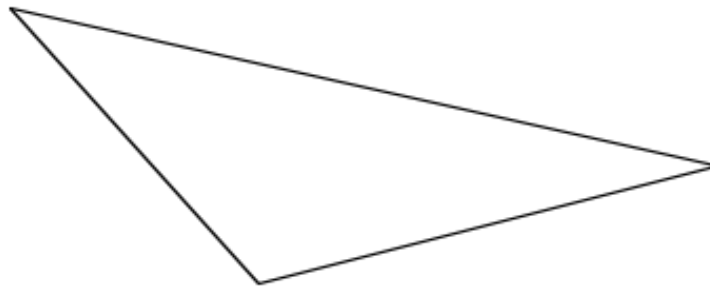
b. XY



c. PQ



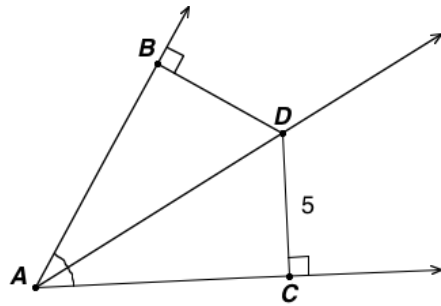
Example 2: A triangular shaped garden is shown. Can a fountain be placed at the circumcenter and still be inside the garden?



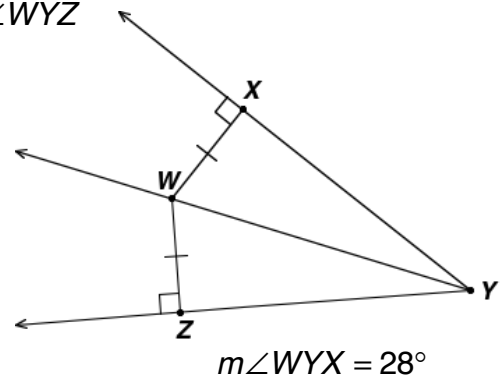
Question: If you have an obtuse triangle, where will the circumcenter be? Where will it be for an acute triangle? For a right triangle?

Example 3: Find each measure.

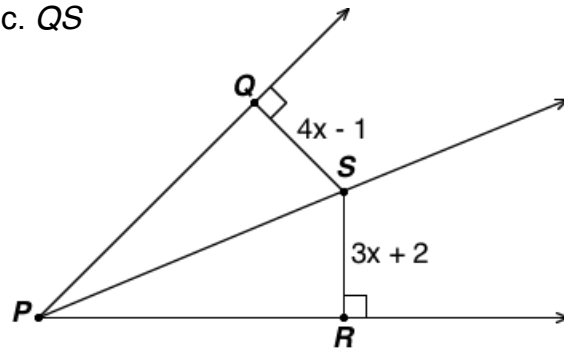
a. DB



b. $m\angle WYZ$



c. QS

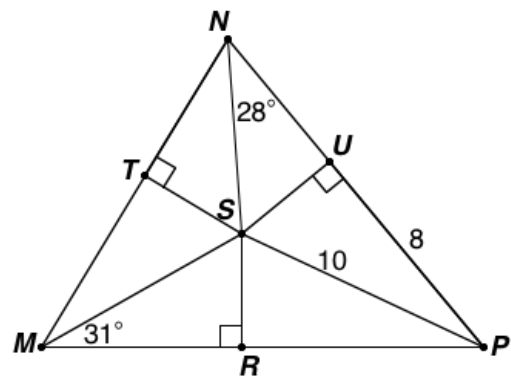


$$\angle PQS \cong \angle RPS$$

Example 4: Find each measure if S is the incenter of $\triangle MNP$.

a. SU

b. $m\angle SPU$



Problem Set:

"Great opportunities to help others seldom come, but small ones surround us every day." - Sally Koch